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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,483	03/19/2001	Yoshinobu Hanyu	P20757	8955

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
SISSON, BRADLEY L	
ART UNIT	**PAPER NUMBER**
1634	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/810,483	HANYU ET AL.	
	Examiner	Art Unit	
	Bradley L. Sisson	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *25 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *55-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *55-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 55-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,839,443 (Rose et al.), US Patent 5,607,915 (Patton), US Patent 6,455,053 B1 (Okada et al.),

US Patent 5,997,848 (Patton et al.), US Patent 4,976,968 (Steiner), US Patent 5,096,885 (Pearlman et al.), US Patent 4,963,367 (Ecanow) and US Patent 6,117,434 (Oyama et al.).

5. Rose et al., columns 5 and 6, disclose pharmaceuticals that comprise any of a wide variety of components, including a physiologically active peptide, Pluronic F68 (column 5, lines 31-32; applicant's non-ionic surfactant; page 19 of specification), mannitol (column 5, line 36), and a water-soluble, nonionic, organic binder such as polyvinylpyrrolidone (column 6, line 34). As set forth at column 5, line 27, such preparations may be lyophilized, and can be used as powder for pulmonary, nasal or oral administration (column 5, line 57).

6. Rose et al., do not teach the size of the particles of the lyophilized physiologically active peptide composition, the peptides recited in claims 43-45, and the concentration of the various ingredients, including the physiologically active peptide and mannitol.

7. Patton, column 5, teaches powders that comprise a lyophilized physiologically active polypeptide (parathyroid hormone), that can be configured so as to be used as an inhaler, and that they particles of the powder range in size from about 0.5 μm to 5 μm.

8. Patton, column 5, lists a plethora of ingredients that may be combined with the physiologically active peptide, including mannitol, at line 50.

9. Patton, column 6, teach the physiologically active peptide may be present at a range of from about 1% to about 25% by weight of the powder.

10. Patton does not teach the relative concentration of physiologically active peptide and mannitol.

11. Okada et al., columns 4-5, teach formulations of a powder that can comprise a physiologically active peptide, mannitol (column 5, line 9), polyvinylpyrrolidone (PVP; column

4, lines 63-64; applicant's "water-soluble, nonionic, organic binder"), as well as additional ingredients.

12. Okada et al., column 5, teach the saccharide (e.g., mannitol) may be present "in an amount of 40% by weight or more, and more preferably in an amount of 60% by weight or more in terms of the total solid content of the preparation." Such a showing meets the limitation that the "physiologically active peptide and mannitol be present in a weight proportion of from 1:1 to 1:50," which is a limitation of claims 33-36.

13. While the prior art des not teach the specific concentrations of either water-soluble, nonionic, organic binder (e.g., PVP), or of the nonionic surfactant (e.g., Pluronic F68), such concentrations of formulation are considered to be the result of routine optimization and to not constitute a patentable difference over the prior art of record. It is well settled that routine optimization is not patentable, even if it results in significant improvements over the prior art. In support of this position, attention is directed to the decision in *In re Aller, Lacey, and Hall*, 105 USPQ 233 (CCPA 1955):

> Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. In re Dreyfus, 22 C.C.P.A. (Patents) 830, 73 F.2d 931, 24 USPQ 52; In re Waite et al., 35 C.C.P.A. (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. In re Swenson et al., 30 C.C.P.A. (Patents) 809, 132 F.2d 1020, 56 USPQ 372; In re Scherl, 33 C.C.P.A. (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. In re Sola, 22 C.C.P.A. (Patents) 1313, 77 F.2d 627, 25 USPQ 433; In re Normann et al., 32 C.C.P.A. (Patents) 1248, 150 F.2d 708, 66 USPQ 308; In re Irmscher, 32 C.C.P.A. (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re

Swain et al., 33 C.C.P.A. (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D. C. 324, 135 F.2d 11, 57 USPQ 136. (Emphasis added)

14. Neither Rose et al., Patton, nor Okada et al., teach the physiologically active peptide being insulin or human growth hormone.

15. Patton et al., teaches preparing lyophilized insulin in a powder suitable for inhalation, and that the powder has a particle size of less than 10 μm.

16. Steiner, column 4, discloses lyophilization of physiologically active peptides, and specifically identifies insulin and human growth hormone. The lyophilized particles have a size of about 10 microns.

17. Pearlman et al., column 4, also discloses lyophilization of human growth hormone, and specifically teaches of including other ingredients into the powder, explicitly naming mannitol as one such ingredient.

18. Pearlman provides motivation for including mannitol in such a preparation as the presence of mannitol is recognized as inhibiting "undesirable reactions that hGH undergoes during processing, reconstitution, and storage" (column 4, lines 21-26).

19. Neither Rose et al., Patton, Okada et al., Steiner nor Pearlman et al., teach including hydrogenated lecithin in the powder.

20. Ecanow, abstract, teaches preparing drugs for use in inhalation. Column 13 teaches including soy lecithin along with peptide and/or peptide compositions. Column 14 teaches including polysorbates (applicant's non-ionic surfactant).

21. Ecanow, column 13, teach that the composition may include physiologically active peptides such as human growth hormone.

22. Ecanow, column 17, teaches the lecithin used in the composition can be that subjected to hydrolysis.

23. Ecanow does not teach explicitly of using hydrogenated lecithin.

24. Oyama et al., column 2, teaches using lecithin, "including even hydrogenated lecithin" as it has enhanced solubility.

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated hydrogenated lecithin into the powder of Rose et al., Patton, Okada et al., Steiner and Pearlman et al., as such would have allowed for enhanced solubility and increased stability. It would have also been obvious to one of ordinary skill in the art to have included mannitol in a lyophilized powder preparation of hGH or insulin for as shown above, Pearlman et al., specifically recognizes that by including mannitol, undesired reactions of hGH can be avoided at every phase of the process. In view of the detailed teachings, and, and in the absence of convincing evidence to the contrary, claims 55-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,839,443 (Rose et al.), US Patent 5,607,915 (Patton), US Patent 6,455,053 B1 (Okada et al.), US Patent 5,997,848 (Patton et al.), US Patent 4,976,968 (Steiner), US Patent 5,096,885 (Pearlman et al.), US Patent 4,963,367 (Ecanow) and US Patent 6,117,434 (Oyama et al.).

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

27. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B. L. Sisson

Bradley L. Sisson
Primary Examiner
Art Unit 1634

BLS
14 October 2005